

Attachment #5

BSL RECOMMENDATIONS FOR SELECT AGENTS – Supplement to CDC/NIH *Biosafety in Microbiological and Biomedical Laboratories*, 4th ed. (BMBL)

Summary of biosafety level (BSL) recommendations for Select Agent bacteria, viruses, rickettsiae and fungi listed in Appendix A to Part 72*

Select Agent	Biosafety Level		
	Clinical Specimens (diagnostics)	Propagation	Animal Work
Viruses			
Crimean-Congo hemorrhagic fever virus	4	4	4
Eastern Equine Encephalitis virus	2	2-3	3
Ebola viruses	4	4	4
Equine Morbillivirus (Hendra virus)	3-4	4	4
Lassa fever	4	4	4
Marburg virus	4	4	4
Rift Valley fever virus ^a	3 & HEPA ^b	3 & HEPA	3 & HEPA
South American hemorrhagic fever viruses			
Junin ^c	4	4	4
Machupo	4	4	4
Sabia	4	4	4
Flexal	3	3	3
Guanarito	4	4	4
Tick-borne encephalitis complex viruses			
Absettarov ^d	4	4	4
Hanzalova ^d	4	4	4
Hypr ^d	4	4	4
Kumlinge ^d	4	4	4
Kyasanur Forest disease	4	4	4
Omsk hemorrhagic fever	4	4	4
Russian Spring-Summer encephalitis	4	4	4
Venezuelan Equine Encephalitis virus	3 & HEPA	3 & HEPA	3 & HEPA
Variola major virus (Smallpox virus)	4	4	4
Viruses causing hantavirus pulmonary syndrome	3	3-4	3-4
Yellow fever virus	3 & HEPA	3 & HEPA	3 & HEPA
Bacteria			
<i>Bacillus anthracis</i>	2	2-3	2-3
<i>Brucella abortus</i> , <i>B. melitensis</i> , <i>B. suis</i>	2	3	3
<i>Burkholderia (Pseudomonas) mallei</i>	2	2-3	3
<i>Burkholderia (Pseudomonas) pseudomallei</i>	2	2-3	3
<i>Clostridium botulinum</i>	2	2-3	2-3
<i>Francisella tularensis</i>	2	3	3
<i>Yersinia pestis</i>	2	2-3	2-3
Rickettsiae			
<i>Coxiella burnetii</i>	2	3	3
<i>Rickettsia prowazekii</i>	2	3	2-3
<i>Rickettsia rickettsii</i>	2	3	2-3
Fungi			
<i>Coccidioides immitis</i>	2	3	2-3

*Note that BSLs listed are agent specific, and actual safety levels used should be based on individual laboratory risk assessments and procedures performed. If available, licensed vaccines, Investigational New Drugs (IND), or toxoids are recommended when working with certain select agents; ^aVaccine strains of some viruses may be handled at lower BSLs; ^bHEPA = Hepa filtered exhaust; ^cThe Subcommittee on Arbovirus Laboratory Safety (SALS) has lowered the biohazard classification of Junin virus to BSL-3, provided that all at-risk personnel are immunized and the laboratory is equipped with HEPA-filtered exhaust; ^dThe Subcommittee on Arbovirus Laboratory Safety (SALS) has reclassified the group of Central European Tick-borne encephalitis (CETBE) viruses (presently consisting of Absettarov, Hanzalova, Hypr, and Kumlinge) to BSL-3 when personnel handling these or antigenically similar viruses are immunized with CETBE vaccine. Russian Spring-Summer encephalitis (RSSE) and antigenically related viruses should be handled at BSL-4.